FERC Relicensing – Conowingo Dam

- Operational 1928
- 11 units – 573 MW
- 2 “house” units
- FERC licensed in 1980
- Fish Lifts 1972 & 1991

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Other Susquehanna River Hydro

- **Muddy Run** (Pump/Storage)
  - in FERC relicensing
  - expires 2014
- **Holtwood Dam**
  - adding new turbines
  - amended to 2030
- **Safe Harbor Dam**
  - expires 2030
- **York Haven Dam**
  - in FERC relicensing
  - expires 2014

Relicensing Participants (Conowingo)

- Federal Energy Regulatory Commission (FERC)
- Exelon – Applicant / Owner
- Maryland – DNR & MDE
- Pennsylvania – PADEP, PAFBC
- USFWS / NOAA / NMFS
- National Park Service (NPS)
- Susquehanna River Basin Commission (SRBC)
- The Nature Conservancy (TNC)
- Lower Susquehanna Riverkeeper

FERC's Relicensing Schedule

2009

- **Pre-Application Document**
  - Maryland participated in development of study plans
  - FERC approved a total of 32 studies
  - Exelon conducted studies between 2010 and 2012

2012

- **Final License Application (FLA) - August 31, 2012**
  - Settlement negotiations began October 2012

2013

- **FERC Ready for Environmental Assessment (REA)**
  - Within 60 days following issuance of the REA
    - FWS must issue fish passage prescriptions;
    - MD can enter 10j licensing recommendations

2014

- **Current license expires September 1st, 2014**

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Studies Approved by FERC

3.1 Seasonal and Diurnal Water Quality in Conowingo Pond and below Conowingo Dam
3.2 Downstream Fish Passage Effectiveness Study
3.3 Biological and Engineering Studies of American Eel at the Conowingo Project
3.4 American Shad Passage Study
3.5 Upstream Fish Passage Effectiveness Study
3.6 Conowingo East Fish Lift Attraction Flows
3.7 Fish Passage Impediments Study below Conowingo Dam
3.8 Downstream Flow Ramping and Fish Stranding Study
3.9 Biological and Engineering Studies of the East and West Fish Lifts
3.10 Maryland Darter Surveys
3.11 Hydrologic Study of the Lower Susquehanna River
3.12 Water Level Management (Littoral Zone and Water Level Fluctuation)
3.13 Study to Assess Tributary Access in Conowingo Pond
3.14 Debris Management Study
3.15 Sediment Introduction and Transport (Sediment and Nutrient Loading)
3.16 Instream Flow Habitat Assessment below Conowingo Dam

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Studies Approved by FERC (Continued)

3.17 Downstream EAV/SAV Study (Water Level Vegetative Cover Study)
3.18 Characterization of Downstream Aquatic Communities
3.19 Freshwater Mussel Characterization Study below Conowingo Dam
3.20 Salinity and Salt Wedge Encroachment
3.21 Impact of Plant Operations on Migratory Fish Reproduction
3.22 Shortnose and Atlantic Sturgeon Life History Studies
3.23 Study to Identify Habitat Use Areas for Bald Eagle
3.24 Dreissenid Mussel Monitoring Study
3.25 Creel Survey of Conowingo Pond and the Susquehanna River below Conowingo Dam
3.26 Recreational Inventory and Needs Assessment
3.27 Shoreline Management
3.28 Archaeological and Historic Cultural Resource Review and Assessment
3.29 Effect of Project Operations on Downstream Flooding
3.30 Osprey Nesting Survey
3.31 Black-crowned Night Heron Nesting Survey
3.32 Re-evaluate the Closing of the Catwalk to Recreational Fishing

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Significant Issues

- Sediment Management
- Fish Passage
  - American Shad
  - American Eel
- Flow Management
  - fish stranding
  - downstream habitat
- Water Quality
  - freshwater mussels

Fish Passage

- Passage impeded by 4 dams and several intakes
- Migratory fish are ecology important
- American eel are larval host for freshwater mussels
- Adult eels remove nutrient biomass

Flow

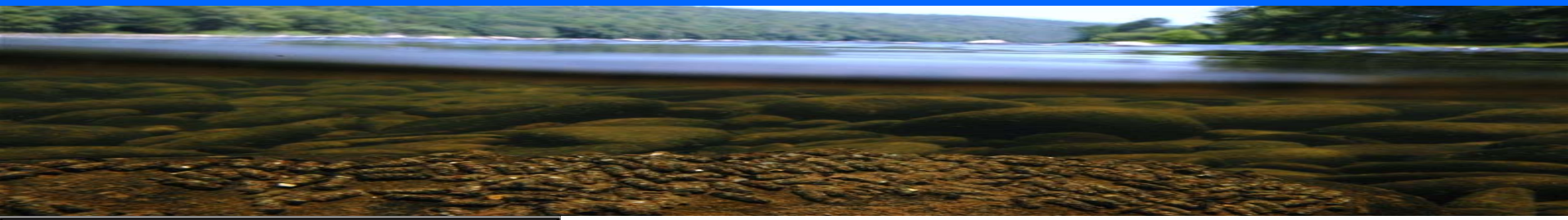
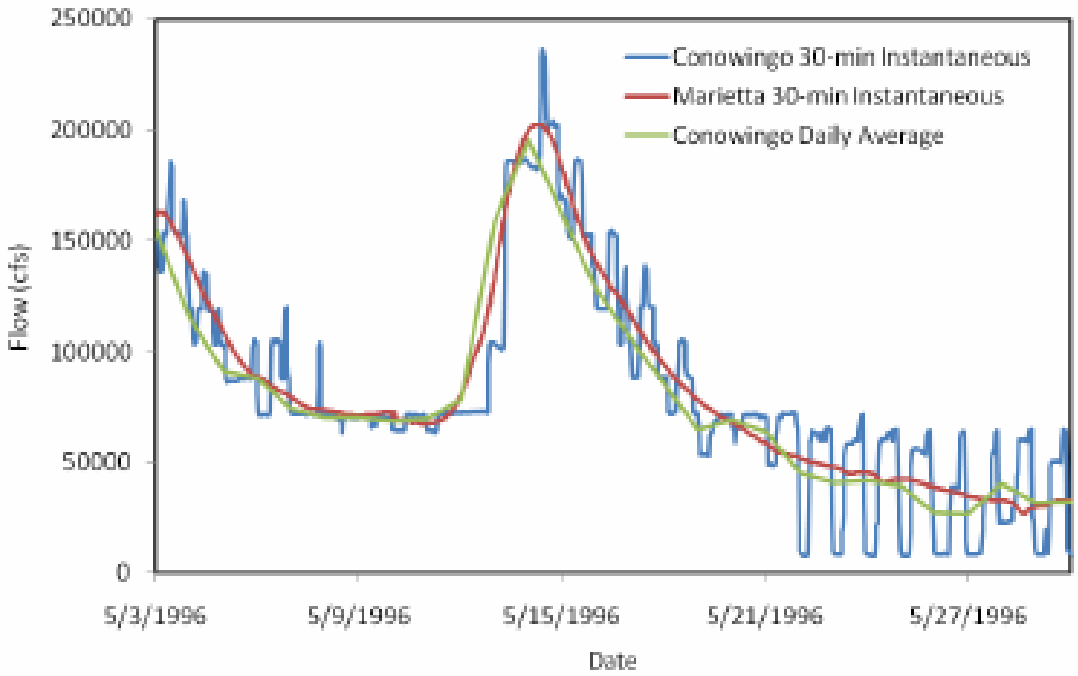


FIGURE 4.2.2-1: COMPARISON OF MARIETTA AND CONOWINGO 30-MINUTE AND DAILY AVERAGE FLOW DATA



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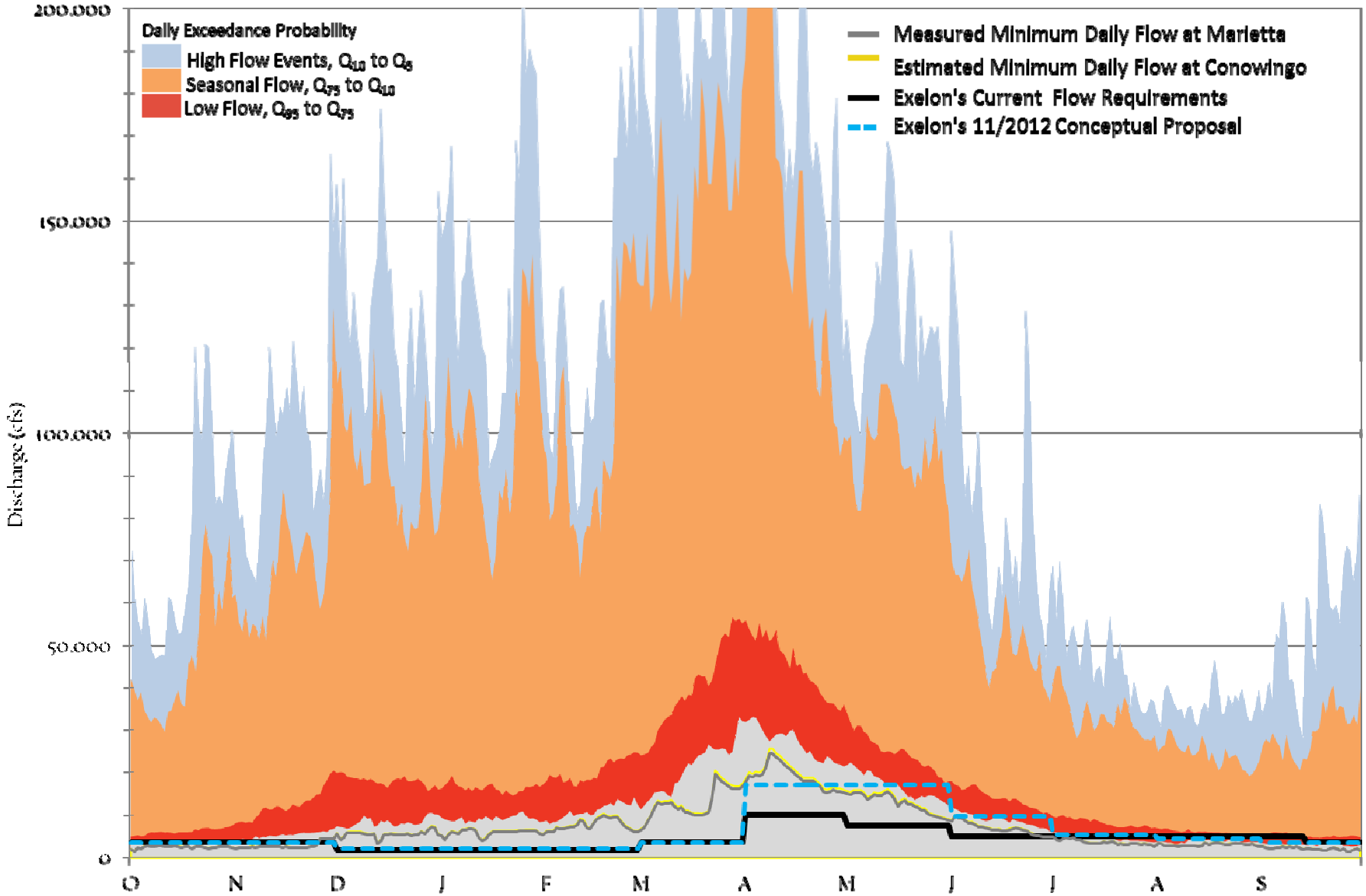
Natural Flow Variability: Susquehanna River at Conowingo*

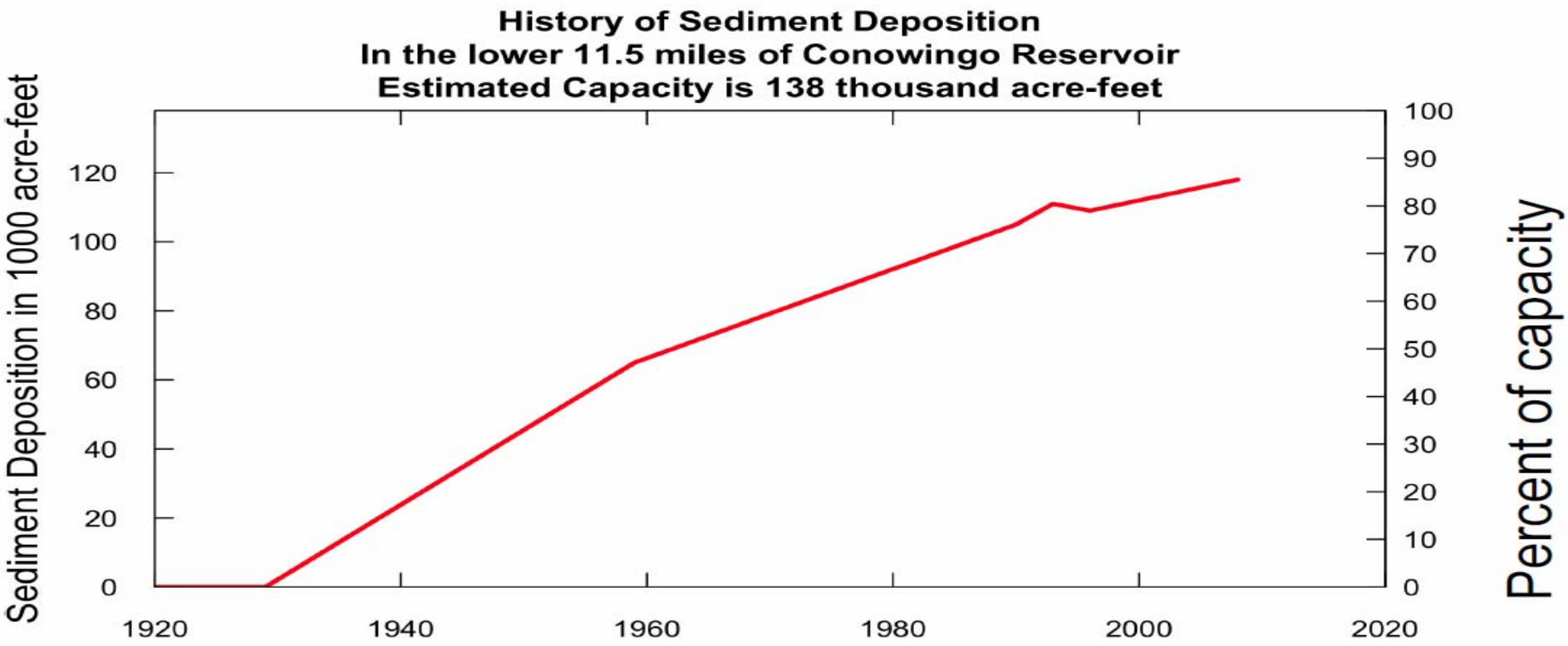
*Estimated distribution of unaltered daily flows using Marietta Baseflows (1930-2007) - basin area ratio method



Sediment

- Holtwood and Safe Harbor already at dynamic equilibrium
- 3 million tons/year loading with 2 million tons/year captured
- Traps about 2% N, 40% P and 50-70% of suspended sediments
- Sediment Capacity at ≈86%
- 10-15 yrs of storage capacity?
- Tropical Storm Lee (2011) scoured ≈4 million tons of sediment / added about 2 yrs
- Hurricane Agnes (1972)
- Project operations (peaking) continue to scour deposited sediment below the dam which reduces habitat quality and availability

Sediment



Source: Langland, 2009
http://pubs.usgs.gov/sir/2009/5110/

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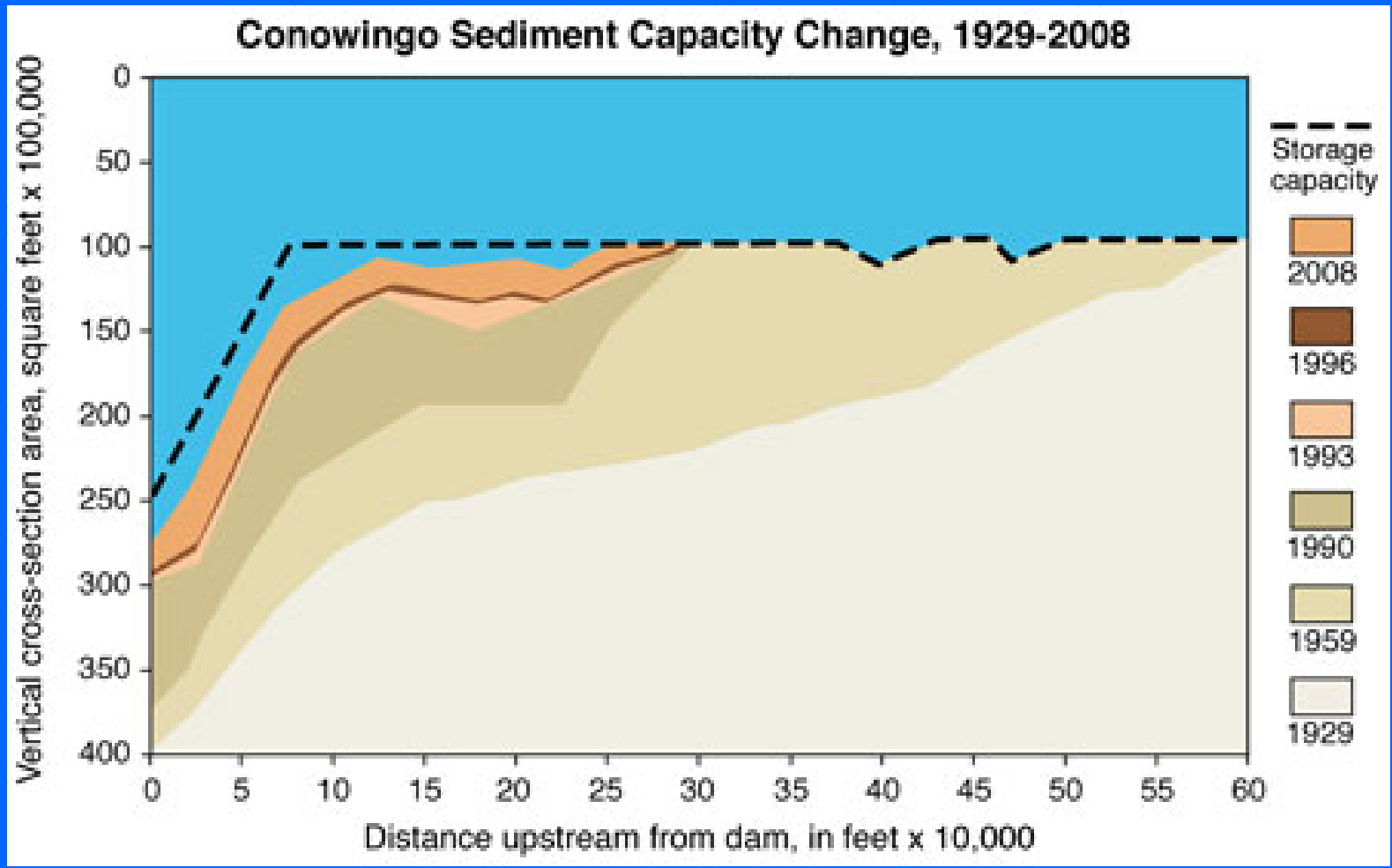
Sediment



Source: USGS

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Other Issues

Recreation / Catwalk
Land Conservation

Debris Management
RTE Species

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MDE's 401 Water Quality Certification

- Exelon must file its 401 WQC Application within 60 days of REA.
- State must act within 1 year of receipt of the WQC application or it waives its rights (there are ways to extend).
- State's 401 WQC authority has been interpreted broadly by courts.
  - Includes authority to condition as necessary to ensure compliance with State water quality standards.
  - Courts have upheld WQC conditions related to fish passage, habitat, minimum flows, and recreation.
- FERC cannot grant license without WQC from Maryland (although 1 year licenses are possible)
- FERC has little to no authority to reject or modify our WQC conditions.
- WQC determination is appealable to State court.

MDE

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Goals for Relicensing

- Proper Management of Sediment
- Improved Fish Passage (Am Shad - Goal of 2M above YH; Am Eel - Goal of 8.2M within 10 years)
- Restore Freshwater Mussels (water quality / filtration capabilities)
- Enhance Flow Conditions (improve downstream habitat; reduce fish stranding)

- Expand and Improve Recreational Opportunities
- BMP for Debris Management
- Land Preservation
- Protection of RTE Species

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Potential Mitigation for Sediment

- Reducing sediment yield from the watershed
- Minimizing sediment deposition – e.g.: by-pass the dam or modify operations
- Increasing or recovering sediment-trapping volume
- Dredging – e.g.: enlarge the storage capacity
- Innovative Reuse – e.g.: development of light weight aggregate, restore eroded islands
- Replenishment – e.g.: using sediment as landfill cover, to cover abandon mines, as material for agricultural fields

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